

**Amendments to the Claims:**

This list of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

Claim 1 (currently amended): A method for treating agricultural waste, the method comprising introducing an alkane substrate comprising butane and/or propane as the most prevalent compound on a weight percentage basis to agricultural waste, and introducing an oxygen-containing gas to the agricultural waste, to stimulate the growth of alkane-utilizing bacteria which at least partially digest the agricultural waste.

Claim 2 (original): The method of Claim 1, wherein the alkane substrate comprises butane.

Claim 3 (original): The method of Claim 1, wherein the alkane substrate comprises butane as the most prevalent compound on a weight percentage basis.

Claim 4 (canceled)

Claim 5 (currently amended): The method of Claim 1, wherein the alkane substrate comprises propane as the most prevalent compound on a weight percentage basis.

Claim 6 (original): The method of Claim 1, wherein the agricultural waste comprises animal waste.

Claim 7 (original): The method of Claim 6, wherein the animal waste comprises manure.

Claim 8 (original): The method of Claim 6, wherein the animal waste comprises urine.

Claim 9 (original): The method of Claim 6, wherein the animal waste is provided from at least one animal selected from the group consisting of horses, cows, cattle, pigs, sheep, chickens, goats and turkeys.

Claim 10 (original): The method of Claim 6, wherein the animal waste is provided in the form of a slurry.

Claim 11 (original): The method of Claim 1, wherein the agricultural waste comprises vegetable material, leaf material, plant material, composting material and/or waste paper product.

Claim 12 (canceled)

Claim 13 (currently amended): The method of Claim ~~[[12]]~~ 1, wherein the oxygen-containing gas comprises air.

Claim 14 (original): The method of Claim 1, further comprising introducing water to the agricultural waste.

Claim 15 (withdrawn): An apparatus for treating agricultural waste, comprising:  
a waste containment vessel;  
a source of alkane substrate; and  
an alkane injector line in flow communication with the waste containment vessel and the source of alkane substrate.

Claim 16 (withdrawn): The apparatus of Claim 15, further comprising an outlet line in flow communication with the waste containment vessel for transport of at least partially digested agricultural waste from the waste containment vessel.

Claim 17 (withdrawn): The apparatus of Claim 16, further comprising an injection distribution network in flow communication with the outlet line for transport of the at least partially digested agricultural waste from the outlet line to a field.

Claim 18 (withdrawn): The apparatus of Claim 17, wherein the injection distribution network transports the at least partially digested agricultural waste to the field intermittently.

Claim 19 (withdrawn): The apparatus of Claim 17, wherein the injection distribution network continuously.

Claim 20 (withdrawn): The apparatus of Claim 15, further comprising:  
a source of oxygen-containing gas; and  
an oxygen-containing gas injector line in flow communication with the source of oxygen-containing gas and the waste containment vessel.

Claim 21 (withdrawn): The apparatus of Claim 20, wherein the oxygen-containing gas injector line is separate from the alkane injector line.

Claim 22 (withdrawn): The apparatus of Claim 15, further comprising:  
a source of water; and  
a water injector line in flow communication with the source of water and the waste containment vessel.

Claim 23 (withdrawn): The apparatus of Claim 15, wherein the alkane substrate comprises butane.

Claim 24 (withdrawn): An apparatus for treating agricultural waste, the apparatus comprising a means for introducing an alkane substrate into the agricultural waste to at least partially digest the agricultural waste.

Claim 25 (withdrawn): A method for producing plant growth-enhancing material, the method comprising:  
introducing an alkane substrate to agricultural waste to stimulate the growth of alkane-utilizing bacteria which at least partially digest the agricultural waste; and  
recovering plant growth-enhancing material comprising the at least partially digested agricultural waste.

Claim 26 (withdrawn): The method of Claim 25, wherein the alkane substrate comprises butane.

Claim 27 (withdrawn): The method of Claim 25, wherein the agricultural waste comprises animal waste.

Claim 28 (withdrawn): The method of Claim 27, wherein the animal waste comprises manure.

Claim 29 (withdrawn): The method of Claim 27, wherein the animal waste comprises urine.

Claim 30 (withdrawn): The method of Claim 27, wherein the animal waste is provided from at least one animal selected from the group consisting of horses, cows, cattle, pigs, sheep, chickens, goats, and turkeys.

Claim 31 (withdrawn): The method of Claim 25, wherein the agricultural waste comprises vegetable material, leaf material, plant material, composting material and/or a waste paper product.

Claim 32 (withdrawn): A plant growth-enhancing material comprising alkane-utilizing bacteria and a carrier material.

Claim 33 (withdrawn): The plant growth-enhancing material of Claim 32, wherein the alkane-utilizing bacteria comprise butane-utilizing bacteria.

Claim 34 (withdrawn): The plant growth-enhancing material of Claim 32, wherein the carrier material comprises at least partially digested agricultural waste.

Claim 35 (withdrawn): The plant growth-enhancing material of Claim 34, wherein the agricultural waste comprises animal waste.

Claim 36 (withdrawn): The plant growth-enhancing material of Claim 32, wherein the carrier material comprises water.

Claim 37 (withdrawn): A plant growth-enhancing material comprising an alkane substrate and a carrier material.

Claim 38 (withdrawn): The plant growth-enhancing material of Claim 37, wherein the alkane substrate comprises butane.

Claim 39 (withdrawn): The plant growth-enhancing material of Claim 37, wherein the carrier material comprises at least partially digested agricultural waste.

Claim 40 (withdrawn): The plant growth-enhancing material of Claim 39, wherein the agricultural waste comprises animal waste.

Claim 41 (withdrawn): The plant growth-enhancing material of Claim 37, wherein the carrier material comprises water.

Claim 42 (withdrawn): A method for treating soil to enhance plant growth, the method comprising introducing alkane-utilizing bacteria to the soil.

Claim 43 (withdrawn): The method of Claim 42, wherein the alkane-utilizing bacteria comprise butane-utilizing bacteria.

Claim 44 (withdrawn): The method of Claim 42, wherein the alkane-utilizing bacteria are introduced to the soil with a carrier material.

Claim 45 (withdrawn): The method of Claim 44, wherein the carrier material comprises at least partially digested agricultural waste.

Claim 46 (withdrawn): The method of Claim 45, wherein the animal waste is located in a slurry tank.

Claim 47 (withdrawn): The method of Claim 44, wherein the agricultural waste comprises vegetable material, leaf material, plant material, composting material and/or a waste paper product.

Claim 48 (withdrawn): The method of Claim 42, wherein the carrier material comprises water.

Claim 49 (withdrawn): A method for treating soil to enhance plant growth, the method comprising introducing an alkane substrate and a carrier material to the soil.

Claim 50 (withdrawn): The method of Claim 49, wherein the alkane substrate comprises butane.

Claim 51 (withdrawn): The method of Claim 49, wherein the carrier material comprises at least partially digested agricultural waste.

Claim 52 (withdrawn): The method of Claim 51, wherein the agricultural waste comprises animal waste.

Claim 53 (withdrawn): The method of Claim 51, wherein the agricultural waste comprises vegetable material, leaf material, plant material, composting material and/or a waste paper product.

Claim 54 (withdrawn): The method of Claim 49, wherein the carrier material comprises water.

Claim 55 (withdrawn): A method of enhancing plant growth, the method comprising introducing alkane-utilizing bacteria into a location adjacent to a plant.

Claim 56 (withdrawn): The method of Claim 55, where the alkane-utilizing bacteria are introduced with a carrier material.

Claim 57 (withdrawn): The method of Claim 56, wherein the carrier material comprises at least partially digested agricultural waste.

Claim 58 (withdrawn): The method of Claim 56, wherein the carrier material comprises water.

Claim 59 (withdrawn): A method of enhancing plant growth, the method comprising introducing an alkane substrate and a carrier material into a location adjacent to a plant.

Claim 60 (withdrawn): The method of Claim 59, wherein the carrier material comprises at least partially digested agricultural waste.

Claim 61 (withdrawn): The method of Claim 59, wherein the carrier material comprises water.